



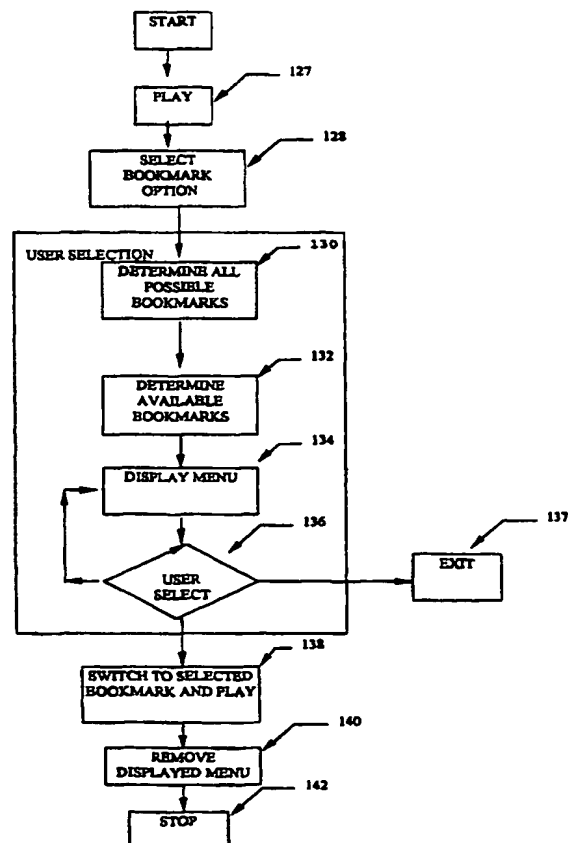
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(54) Title: DIGITAL VIDEO APPARATUS USER INTERFACE

(57) Abstract

A method of controlling a system for processing stored information on a storage medium includes the following steps. Stored information is played back during a play mode of operation. A user is provided an opportunity to select a bookmark, representing a corresponding location within the stored information, from among a plurality of bookmarks, responsive to user input. Playback is changed to from the location corresponding to the selected bookmark during the play mode of operation. Apparatus for processing information stored on a storage medium includes playback circuitry for retrieving information from the storage medium during a play mode of operation. A user control device receives user input. Control circuitry selects a bookmark, corresponding to a location in the retrieved information from the storage medium, in response to the user input, and conditions the playback circuitry to retrieve information from the storage medium starting at the location corresponding to the selected one of a plurality of bookmarks during the play mode of operation.



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DIGITAL VIDEO APPARATUS USER INTERFACE

The present invention relates to a user interface for a digital video apparatus, and in particular, a user interface for a digital video apparatus capable of processing data blocks having position information included therewith, wherein the digital video apparatus can navigate through the data blocks based on position related information.

Video signal processing systems that utilize storage media having digitally compressed video and audio information recorded thereon can give the user a vast number of options for controlling playback of a video title stored on such a media. One such system that is gaining rapid acceptance comprises a video disc player adapted to process information stored in accordance with the digital video disc (DVD) specification. The information on a DVD formatted disc is recorded as discrete packets of data, in accordance with the applicable video and audio data compression standards, wherein designated packets carry data associated with various data streams, such as alternative video angles, audio tracks, subpicture streams, etc. A disc player reading a DVD formatted disc may be controlled to display certain packets of data and skip over others. In this manner, the DVD system can be used to prevent unauthorized access to information on a particular disc as well as seamlessly provide multiple variations of a video title, such as multiple camera angles and story endings, in accordance with user commands.

Each data packet or designated block of data packets also carry control information specifying the location of the data packet or block of data packets on the disc. One useful aspect of including location information in the data is that a disc player can be controlled to start and/or stop playback from a designated location on the disc.

DVD formatted discs are generally authored to include one or more video titles, wherein each video title corresponds to a designated program unit such as a movie or a television episode. Each video title may in turn be divided into one or more part-of-title units, also called chapters, wherein each chapter corresponds to a predetermined portion of the video title.

To assist the user in navigating through a disc, a menu or a set of menus are authored onto a disc. A disc menu usually lists the available video titles and

a video title menu usually lists the available chapters on a particular video title. The menus are usually configured such that the user can begin playback from the starting point of a selected video title or chapter.

However, these menus do not allow the user to select an arbitrary point within a video title or chapter for starting playback. For example, a user may have a favorite point in the middle of video title or a chapter in which to start playback. The user also may wish to avoid the inconvenience of manipulating the fast forward or reverse commands to reach the precise point desired. The user may also have a plurality of such favorite points located throughout the disc or within a video title. It can be seen that locating each of the desired points during playback can quickly become cumbersome and annoying. Therefore, what is needed is a user interface, apparatus and method which allows the user to avoid the inconvenience of having to manipulate the various transport keys in order to locate and start playback from a selected location within a video title or chapter.

In accordance with principles of the present invention, a method of controlling a system for processing stored information on a storage medium includes the following steps. Stored information is played back during a play mode of operation. A user is provided an opportunity to select a bookmark, representing a corresponding location within the stored information, from among a plurality of bookmarks, responsive to user input. Playback is changed to the location corresponding to the selected bookmark during the play mode of operation. Apparatus for processing information stored on a storage medium includes playback circuitry for retrieving information from the storage medium during a play mode of operation. A user control device receives user input. Control circuitry selects a bookmark, corresponding to a location in the retrieved information from the storage medium, in response to the user input, and conditions the playback circuitry to retrieve information from the storage medium starting at the location corresponding to the selected one of a plurality of bookmarks during the play mode of operation.

The invention will be described with reference to the accompanying drawings, wherein:

Fig. 1 is a block diagram of a digital video disc player suitable for implementing the bookmark feature of the present invention;

Fig. 2 is a diagram of a data structure in accordance with the DVD specification;

Fig. 3 is a block diagram of a presentation structure in accordance with the DVD specification;

5 Fig. 4 is an on-screen display suitable for use with the bookmark feature of the present invention.;

Fig. 5 is a flowchart illustrating the steps for implementing the displaying and dynamically selecting among particular ones of a plurality of bookmarks on a DVD Player; and

10 Fig. 6 shows, in flowchart form, another embodiment of the method for implementing the displaying and dynamically selecting among particular ones of a plurality of bookmarks on a DVD Player in accordance with principles of the invention.

Although the exemplary embodiment is described with reference to a
15 digital video apparatus adapted to read compressed video and audio data from a disc and to process the data in accordance with the DVD specification, it is to be understood that the present invention may be used in any digital video apparatus capable of processing digital video and audio data, wherein the data is stored or received in packetized form with location information included therewith such that the
20 digital video apparatus can quickly locate a particular data block and begin playback from a selected location.

Fig. 1 is a block diagram showing the basic elements of an exemplary digital video disc player suitable for use in implementing the bookmark feature of the present invention. The construction and operation of these elements are known to one
25 of ordinary skill in the art and will not be discussed in detail here. Disc player 24 comprises motor and pickup assembly 26 which, under the control of servo processor 29, spins the disc and reads the information stored thereon. Preamp 27 and DVD data processing unit 28 translate the electrical pulses from motor and pickup assembly 26 into digital data that can be further processed by digital audio/video decoder unit 30.
30 DVD data processing unit 28 typically performs functions such as demodulation, error correction and descrambling of the raw data read from the disc so that the data is in a suitable format for decoder unit 30.

Decoder unit 30 receives the demodulated, error corrected and descrambled data, processes the data, and provides the appropriate video and audio signals to a display unit, such as a television set. Decoder unit 30 comprises data stream demultiplexer 32 which demultiplexes the data from data processing unit 28 into a plurality of separate data streams, including a video stream, an audio stream and a subpicture stream, and provides the data streams to their respective data decoders. Video decoder 31 receives the video stream and provides a video signal to mixer 33. Subpicture decoder 34 receives the subpicture stream and provides data to on-screen display (OSD) control 35 which provides OSD video signals to mixer 33. The combined video signal from mixer 33 is provided to NTSC/PAL encoder 42 which provides a video signal that conforms to the appropriate video signal standard to a video display device. Audio decoder 36 receives the audio streams from data stream demultiplexer 32 and provide the appropriate audio signals to an audio system.

Microcontroller 40 controls the operation of disc player 24. Microcontroller 40 is coupled to user control device 41, which may comprise IR remote control devices, front panel buttons or the like, and translates data from user control device 41 to control the operation of the various elements of disc player 24 described above. Microcontroller 40 may include a memory or may be coupled to a memory for storing various tables that determine the presentation sequence of data retrieved from a disk. Typically, microcontroller 40 is also configured to control various access features of disc player 24 including, but not limited to, parental lock out, decryption of encrypted discs, dialing remote controllers to gain access to encrypted discs. Microcontroller 40 may be embodied in various forms, including, but not limited to, a dedicated integrated circuit, or a part of a decoder/controller unit. Microcontroller 40 may be comprised of one of a plurality of suitable controller units, including, but not limited to STI 5500, manufactured by SGS Thomson.

Fig. 2 illustrates the structure of the program data and control data stored on a disc in accordance with the DVD specification and suitable for use with disc player 24. The data structure is hierarchical, wherein each data block is divided up into component data blocks, which are further divided into smaller component data blocks. Each video title set, which corresponds to a designated program unit, for example, a movie or an episode of a television show, is comprised of video object sets, which comprises a plurality of video objects.

Each video object is comprised of a plurality of cells, which may be considered a data unit for presentation having a plurality of data unit types, such as video, audio, subpicture, etc, and corresponds to a program segment. Each cell is in turn comprised of a plurality of video object units (VOBUs). Each VOB

5 comprised of a navigation pack (NAV_PACK) and a plurality of packs, which are subdivided into a plurality of packets. A VOBU generally corresponds to an MPEG-2 Group of Pictures (GOP) with an associated control data structure, the NAV_PACK. The NAV_PACK of each VOBU contains information such as sector addresses of VOBUs relative to the current one (both forwards and backwards in temporal

10 presentation order), and the amount of elapsed time in cell presentation which corresponds to the current VOBU.

Data stored in accordance with the DVD specification is also logically organized into a presentation structure in order to provide flexibility in the manner in which the data can be presented. Fig. 3 illustrates the presentation structure in

15 accordance with the DVD specification and suitable for use with disc player 24. This presentation structure is overlaid onto the data structure of Fig. 2. At the base level, the presentation sequence is defined by programs (PGs) 96, each of which comprise a linked list of pointers to cells. A plurality of PGs 96 may be combined to form a program chain information (PGCI) 94, a plurality of which may in turn be combined to

20 form program chain (PGC) 92.

During presentation of a video titles, disc player 24 selects the appropriate PGC for loading into a primary table, based on such criteria as the user selected title and parental rating preference. Thereafter, disc player 24 reads the data stored on the disc based on the linked list of pointers contained in the PGs. As is

25 known, disc players generally utilize various look ahead algorithms in order to read the data from the disc and store the data on a system buffer prior to actual presentation in order to provide seamless presentation.

Different versions of a video title set, corresponding to different parental control ratings, may be provided by the disc author to enable disc player 24 to

30 seamlessly branch between various scenes to provide multiple playback sequences for a particular video title set. The seamless branching is achieved by linking and displaying the desired cells, programs and program chains as desired.

As noted above, the present invention recognizes that annoyance and inconvenience may be caused if a user is forced to repeatedly manipulate the transport keys in order to find a particular scene in a video title. Therefore, the present invention provides a user interface, apparatus and method for allowing a user to select a plurality of bookmarks for a particular disc and start playback from a selected one of the bookmarks. An on-screen display 110 suitable for implementing the present user interface is shown in Fig. 4. Display 110 is shown on a portion of the display device while the video title continues to play in another portion of the display, such as the background. The user is able to select the options on display 110 as the video title playback continues.

Display 110 includes bar 112 having a plurality of buttons 113 for allowing the user to select a bookmark with which to begin playback, and bar 114 having a plurality of buttons 115 for setting and erasing bookmarks. Each button 115 has a corresponding button 113 positioned directly above it. A user can direct disc player 24 to go to a particular bookmark and begin playback from that point by selection the appropriate button 113. An item on display 110 may be selected using one of a plurality of conventionally known methods such as using cursor control keys on a remote control device or a keyboard to move a highlight or a cursor on the display. As shown in Fig. 4, display 110 allows the user to select up to 10 bookmarks for a particular disc.

Text display 116 provides user prompts to assist the user in navigating through display 110, and in particular, setting and erasing the bookmarks. Undone button 118 reverses the operation of the previous marking or unmarking function selected by the user. Done button 120 allows the user to exit from display 110.

The operation of the present user interface is as follows.

Microcontroller 40 generates display 110 in response to a designated user input, for example, pressing a particular button in a remote control or selecting a particular button on an on screen display. The user selects the desired one of buttons 115 to set a bookmark or erase a bookmark. If the user selects one of buttons 115, text display 116 indicates that the user can set a bookmark by pressing the "OK" key on remote control device 41. Advantageously, display 110 may be arranged to allow the user to enter a text description of the bookmarked point so that when the user selects a button 115 at a later time, text display 116 displays the user entered text description

associated with that bookmark. If the user wishes to clear the bookmark, the user selects button 118. In order to jump back and begin playback from a particular bookmark, the user selects the appropriate button 113. The present user interface may be modified to require the user to press a confirmation key, such as an "OK" key, to
5 begin playback from a selected bookmark.

In a further embodiment, disc player 24 may include a non-volatile storage device for storing a plurality of bookmarks. Display 110 may be modified to include an identification number of the bookmark set, wherein a user may call up a particular set of bookmarks associated with a specific disc. In this manner, a collection
10 of bookmarks may be maintained and accessed by microcontroller 40 as required by the user.

Advantageously, the present bookmark feature is implemented on disk player 24 by utilizing the Resume function specified in the DVD specification. According to the DVD specification, when the user pauses the presentation of a
15 program, disk player 24 stores in memory various data associated with the stopping point. The data includes, but is not limited to, the nearest NAV_PACK address, the chapter number and the title number. When the user resumes play of the program, disk player 24 launches a user operation resume wherein disk player 24 retrieves the data associated with the stopping point, including the nearest NAV_PACK address and
20 restarts presentation at that NAV_PACK address. In the present invention, when the user specifies a bookmark point, disk player 24 saves, in an auxiliary table, the data that would be saved if the user had specified a pause in the presentation. However, unlike a stop and start sequence, disk player 24 continues presentation of the program. Each time the user specifies a bookmark, the data associated with the bookmark is
25 saved in a similar fashion. Subsequently, when the user specifies playback from a particular bookmark, disk player 24 retrieves the navigation information associated with that bookmark from the auxiliary table and launches the user operative resume to start presentation from the bookmarked point. In this manner, the present invention extends the resume function specified in the DVD specification.

30 In the illustrated embodiment, referring to Fig. 4, there are a total of 10 bookmarks allowed in a set for a particular disk conforming to the ten buttons on display 110 (buttons 113 and 115 of fig. 4). Respective sets of bookmarks are identified and stored by identification number for each bookmark set, wherein the user

may store and then retrieve a particular set of bookmarks associated with a specific disk. For example, a user can have a favorite part of a video in the middle of a chapter in the video and bookmark that portion. That is, the user may set a bookmark for that location and select that bookmark to begin playback of the video at the favorite part using the display of Fig. 4.

It is also possible to have a certain favorite part of a video that the user wants played over and over. Thus, the feature of saving two bookmarks and have continual playback between the two points is also a feature that the user can use. As described above, the user may set a bookmark for the starting location, and another bookmark for the ending location of the favorite part. The user may then specify that playback of the video begin at the first bookmark, and end at the second bookmark. This playback can, optionally, be continually repeated.

The bookmarks, and sets of bookmarks, may be stored in non-volatile memory so that bookmarks for a certain disk can be selected and saved with respect to the particular disk, and later retrieved when that disk is played again. The Undo button (button 118 of display 110 of fig. 4) allows the user to undo the previous operation of marking or unmarking a bookmark. Thus, an accidental marking or unmarking can be undone without having to re-navigate display menu 110.

A flowchart illustrating the steps for implementing the displaying and dynamically selecting among particular ones of a plurality of bookmarks on a DVD Player is shown in Figure 5. In step 127, disc player 24 waits for the user to send a PLAY command and upon receiving the PLAY command searches the disk player's non-volatile memory for a set of bookmarks for this particular disk. In step 128, the user accesses the bookmark functions. In step 130, disk player 24 determines all previously saved bookmarks with respect to the particular disk. In step 132, disk player 24 determines what bookmarks are available, i.e., those bookmarks not blocked with a parent block or those not disabled. In step 134, an on-screen display 110 is overlaid, in a known manner, onto the video and audio display generated by the disk player 24 displaying the allowable bookmarks, and allowing the user to set and clear bookmarks, as well as initiate play from available bookmarks, while continuing to watch the title playback in a background portion of the video display. The menu display distinguishes between those bookmarks present and available and those that are present and unavailable by not displaying the unavailable bookmarks on display 110.

The user, in step 136, can select and clear bookmarks (with 10 stored bookmarks maximum for the displayed set). Step 136 also implements the Undo feature that allows the user to undo the previous operation of marking or unmarking a bookmark in one keystroke. In step 137, the user can decide to exit the routine without
5 switching to play one of a plurality of bookmarks. The menu display tracks the user changes of the available bookmarks that are set, cleared, or selected for play. In step 138, the disk player 24 begins playback at the selected bookmark. In step 140, after disk player 24 switches to and plays the new bookmark, the on-screen display 110 is no longer overlaid onto the video and audio display generated by the disk player 24
10 and the video signal processing system returns to a normal display.

Figure 6 shows, in flowchart form, another embodiment of the method for implementing the displaying and dynamically selecting among particular ones of a plurality of bookmarks on a DVD Player in accordance with principles of the invention. Steps in Fig. 6 which are the same as those illustrated in Fig. 5 have the
15 same reference number as in Fig. 5, operate in the same manner to the corresponding steps in Fig. 5 as described above, and will not be described again here. The arrangement depicted in Fig. 6 provides for selectively enabling the mode of operation in which user sets, clears and selects for playback one of a plurality of bookmarks during the playback mode of operation. Specifically, Fig. 6 includes step 144
20 following step 128 which tests to determine if the access to bookmark functions is enabled. If the access to bookmark functions is disabled (A "NO" result at step 144), then step 144 is followed by step 142 which exits the routine without providing the user an opportunity to set, clear, or playback from the bookmark. In this case, changing the bookmark must occur prior to activation of the playback mode by
25 navigating the usual setup menus as described above if a user desires. Otherwise, the user is given the opportunity to set and select from among the available bookmarks in the manner described above for Fig. 5.

It is herein recognized that the present bookmark feature may be implemented using any one of a number of conventionally known methods, or
30 combination of methods, for controlling the operation of the elements of disc player 24 described above, for example by using embedded software in a microcontroller. Also, the present override feature may be implemented for any signal processing system which can be configured to selectively restrict display contents in response to parental

control ratings, or other program related information, included with stored audio, video and subpicture data, for example DVD-ROM systems, Laser Disc systems, etc. Therefore, it is to be understood that the present invention is intended to cover all modifications as would fall within the true scope and spirit of the present invention.

5 It will be apparent to those skilled in the art that although the present invention has been described in terms of an exemplary embodiment, modifications and changes may be made to the disclosed embodiment without departing from the essence of the invention.

Claims

1. A method of controlling a system for processing stored information on a
5 storage medium, comprising the steps of:
- (A) playing back stored information during a play mode of operation;
 - (B) providing to a user, during play mode of operation, an opportunity to
select a bookmark, representing a corresponding location within the stored
information, from among a plurality of bookmarks responsive to user input;
 - 10 (C) changing to playing back the stored information from the location
corresponding to the selected bookmark during the play mode of operation.
2. The method of claim 1, further comprising the steps of:
- grouping the plurality of bookmarks into sets each having a predetermined
15 number of bookmarks;
 - storing each group of bookmarks; and
 - providing to the user an opportunity to retrieve a desired set of bookmarks.
3. The method of claim 1, wherein:
- 20 step (B) further comprises the step of providing to the user an opportunity to
select a first and a second bookmark from among the plurality of bookmarks; and
 - step (C) further comprises the step of changing to playback the stored
information from the location corresponding to the first selected bookmark to the
location corresponding to the location of the second bookmark.
- 25
4. The method of claim 3, wherein step (C) further comprises the step of
selectively continually repeating the playback of the stored information from the
location corresponding to the first selected bookmark to the location corresponding to
the location of the second bookmark, in response to user control.
- 30
5. The method of claim 1, wherein the storage medium is a DVD disk, and
wherein:

the step of determining the maximum number of bookmarks comprises setting a predetermined number in conformance with the DVD specification;

the step of determining the bookmarks actually present for the particular DVD disk comprises evaluating data related to the DVD disk in non-volatile memory in the disk player.

6. The method of claim 1, wherein step (B) comprises the step of generating an on-screen display overlaid onto a video display by the system which allows the user to select, clear, or playback the stored information from the location corresponding to the selected bookmark while continuing to watch the information playback in a background portion of the video display.

7. The method of claim 6, wherein step (C) comprises the step of removing the on-screen display overlaid on the video display.

8. The method of claim 1, wherein step (B) is preceded by the step of determining whether a mode of operation enabling user access to bookmarks during play mode of operation is enabled; and

performing steps (B) and (C) only if the mode of operation user access to bookmarks during play mode of operation is enabled.

9. The method of claim 8, wherein the step of determining whether user access to bookmarks during play mode of operation is enabled is preceded by the step of determining whether the system is in play mode of operation.

10. The method of claim 1, wherein the system comprises a DVD player and the storage medium comprises a DVD disk.

11. The method of claim 1, wherein step (B) comprises the steps of:
determining the maximum number of the plurality of bookmarks which may be associated with the storage medium;
determining which of the maximum number of the plurality of bookmarks are actually available for the particular storage medium;

generating an on-screen menu displaying the available ones of the plurality of bookmarks associated with a storage medium; and
performing one of:

- (a) setting a new bookmark;
- 5 (b) selecting a bookmark and clearing the selected bookmark,
- (c) selecting a bookmark and playing back the stored
information from the location corresponding to the selected bookmark,
and
- (d) allowing the user to undo a previously performed operation.

10

12. The method of claim 11, wherein step (C) further comprises the steps of selecting a first and second bookmark and playing back the stored information from the location corresponding to the first selected bookmark to the location corresponding to the second selected bookmark.

15

13. The method of claim 12, wherein step (c) further comprises the steps of selecting a first and second bookmark and continually repeating playing back the stored information from the location corresponding to the first selected bookmark to location corresponding to the second selected bookmark.

20

14. The method of claim 11, wherein step (B) further comprises, after the generating step, a step of allowing the user to select from among the plurality of bookmarks actually present on the disk player associated with the particular disk.

25 15. Apparatus for processing information stored on a storage medium comprising:
a storage medium data processing unit for accessing information stored on the storage medium during the play mode of operation of the apparatus; and
a controller for

30

activating the play mode of operation,
processing the information accessed from the storage medium
during the play mode of operation,
providing to a user during the play mode of operation an
opportunity to access previously stored bookmarks, each bookmark

corresponding to a location in the accessed information, by an on
screen display overlaid on a video display while continuing to watch the
accessed information in a background portion of the video display, and
set a bookmark by associating a corresponding
5 location in the accessed information the bookmark;
select and clear a bookmark;
select and playback the accessed information
from the location corresponding to the selected
bookmark; and
10 removing the on screen display from the video display and
returning to the play mode of operation.

16. The apparatus of claim 15, further comprising a non-volatile memory for
storing the plurality of bookmarks.

15 17. Apparatus for processing information stored on a storage medium, comprising:
playback circuitry for retrieving information from the storage medium during a
play mode of operation;

a user control device, coupled to playback circuitry, for receiving user input;

20 and

control circuitry, coupled to user control device and the playback circuitry, for
selecting a bookmark, corresponding to a location in the retrieved information from
the storage medium, in response to the user input, and conditioning the playback
circuitry to retrieve information from the storage medium starting at the location
25 corresponding to the selected one of a plurality of bookmarks during the play mode of
operation.

18. The apparatus of claim 17, wherein the control circuitry further comprises
circuitry for:

30 storing a plurality of bookmarks; and
performing, under user control, one of:

setting a new bookmark by associating it with a location in the
retrieved information and storing the new bookmark with the plurality
of bookmarks,

selecting a bookmark, and clearing it by unstoring it, and

5

selecting a bookmark and conditioning the playback circuitry to
retrieve information from the storage medium from the location
corresponding to the selected one of a plurality of bookmarks during
the play mode of operation

10 19. The apparatus of claim 18, further comprising a non-volatile memory for
storing the plurality of bookmarks.

20. The apparatus of claim 18, wherein the control circuitry can further perform
selecting a first and a second bookmark and conditioning the playback circuitry
15 to retrieve information from the storage medium from the location corresponding to
the first bookmark to the location corresponding to the second bookmark.

21. The apparatus of claim 20, wherein the playback circuitry continually repeats
retrieving information from the storage medium from the location corresponding to the
20 first bookmark to the location corresponding to the second bookmark.

22. The apparatus of claim 18, further comprising:
an on-screen display control, coupled to the control circuitry; wherein:
the control circuitry conditions on the on-screen display control to a display a
25 menu representing the plurality of bookmarks before selecting one of the plurality of
bookmarks.

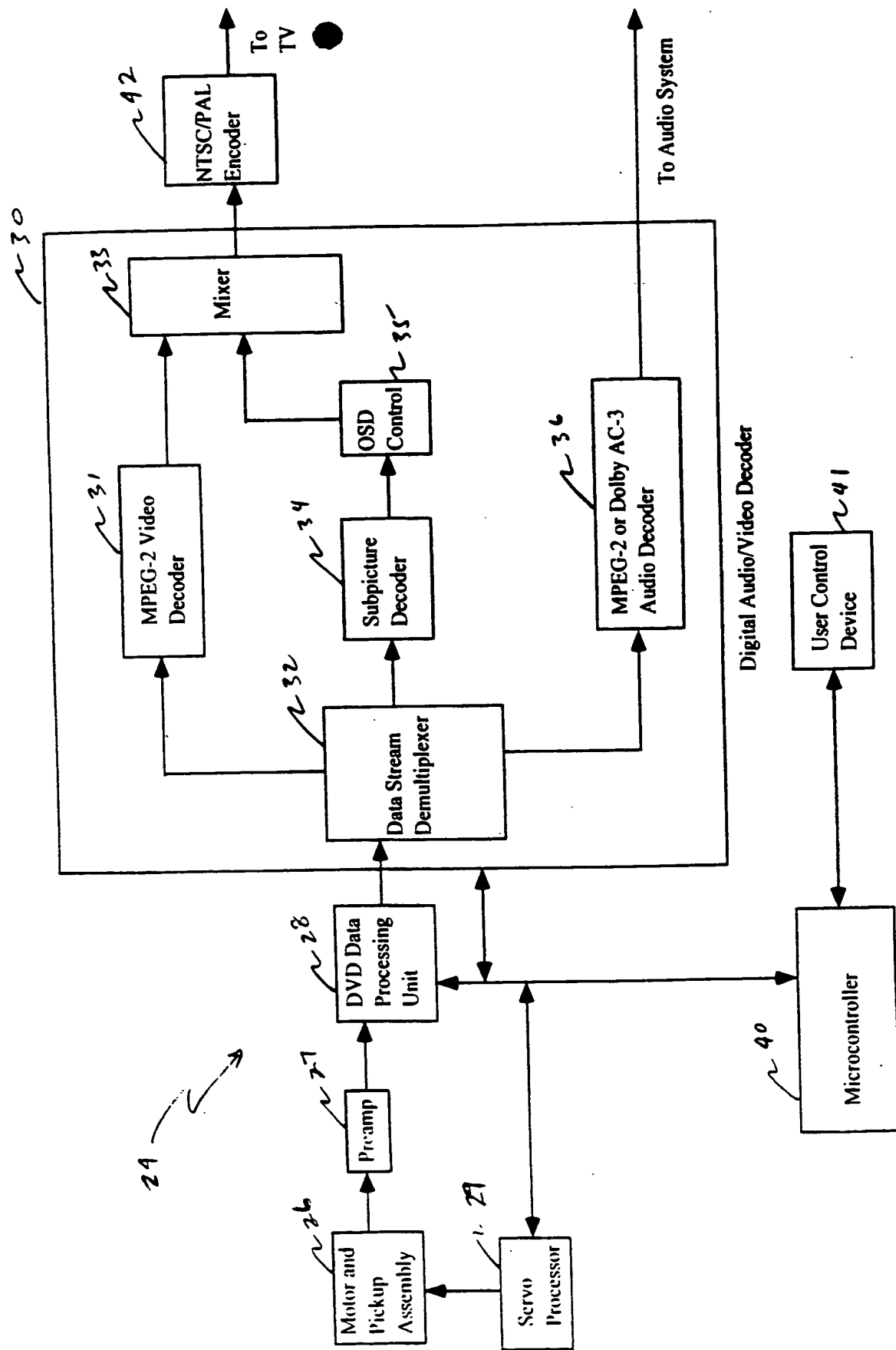


Fig. 1

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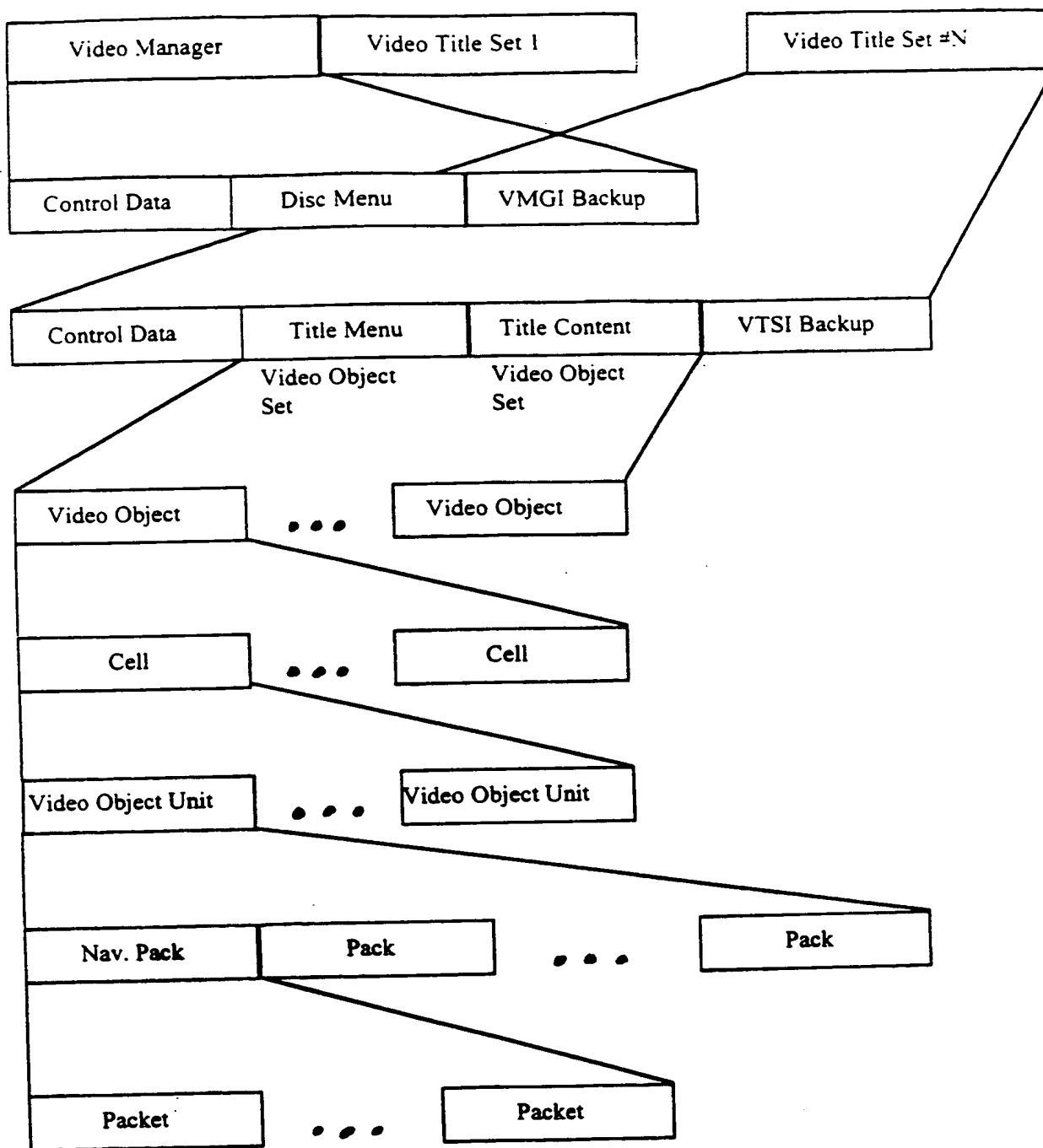


Fig. 2

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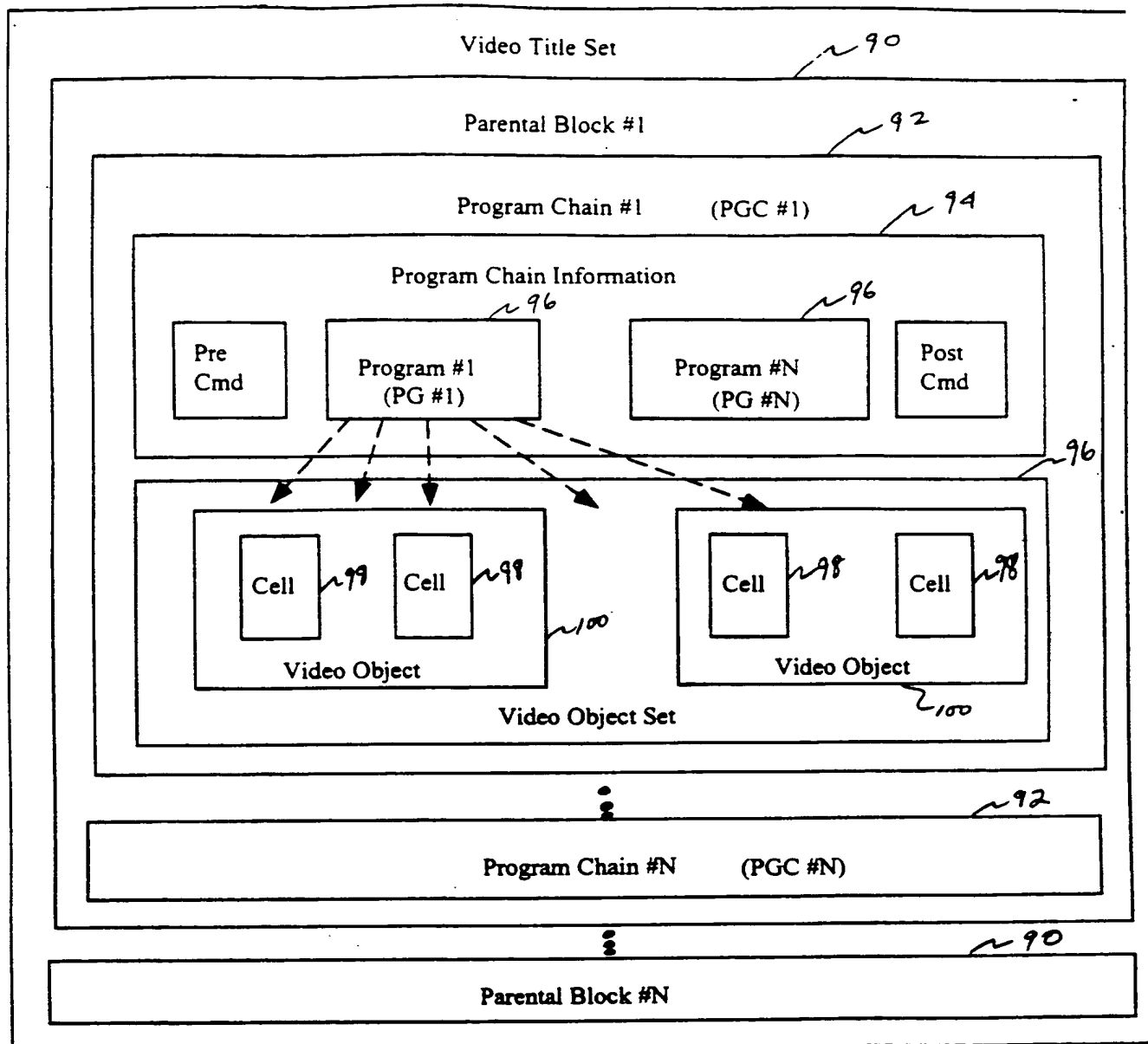


Fig. 3

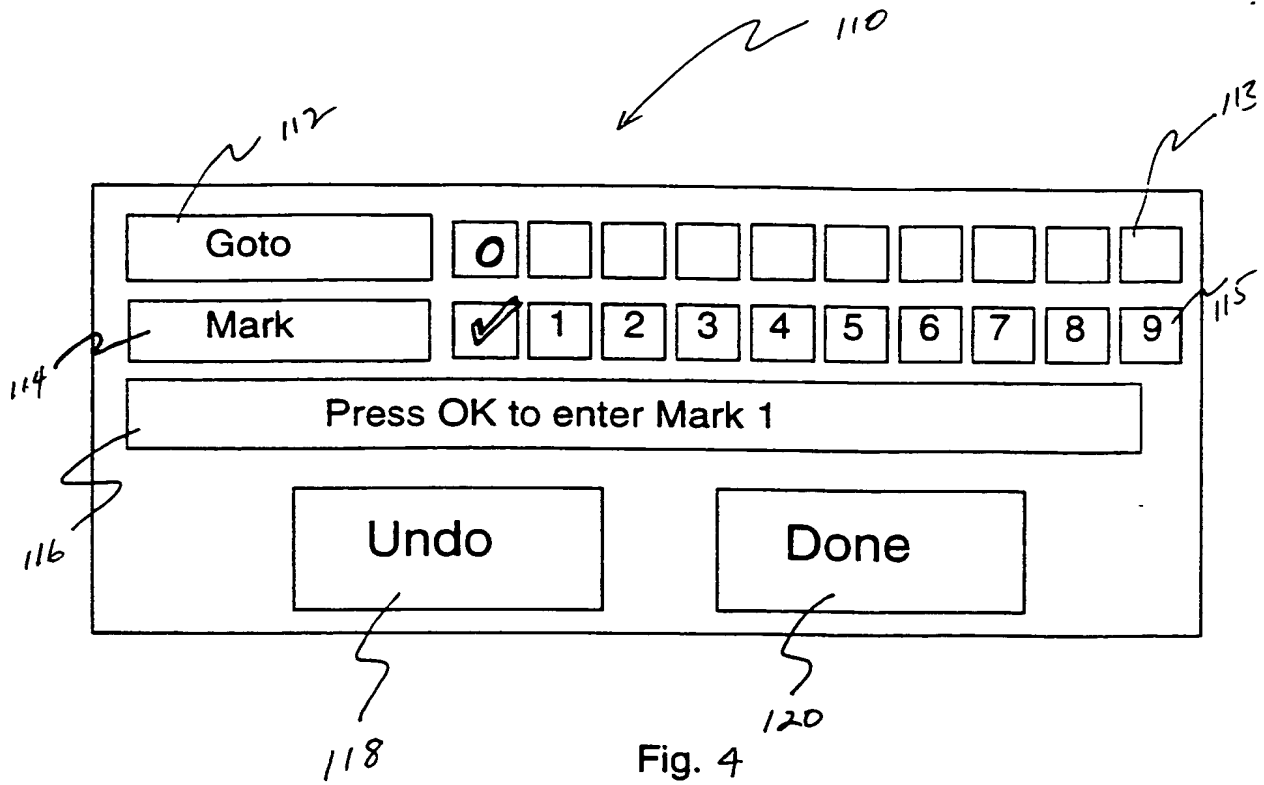
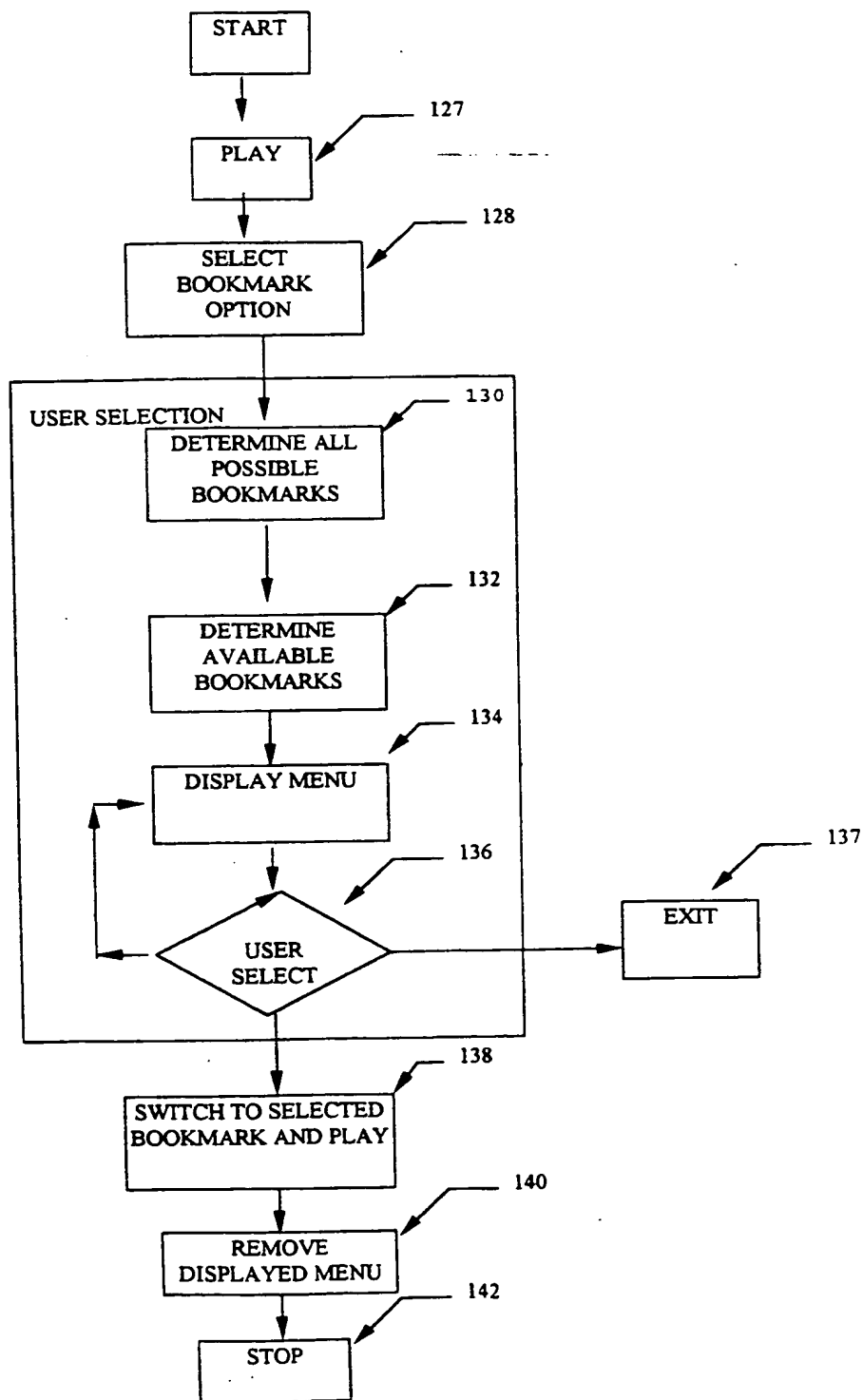


Fig. 4

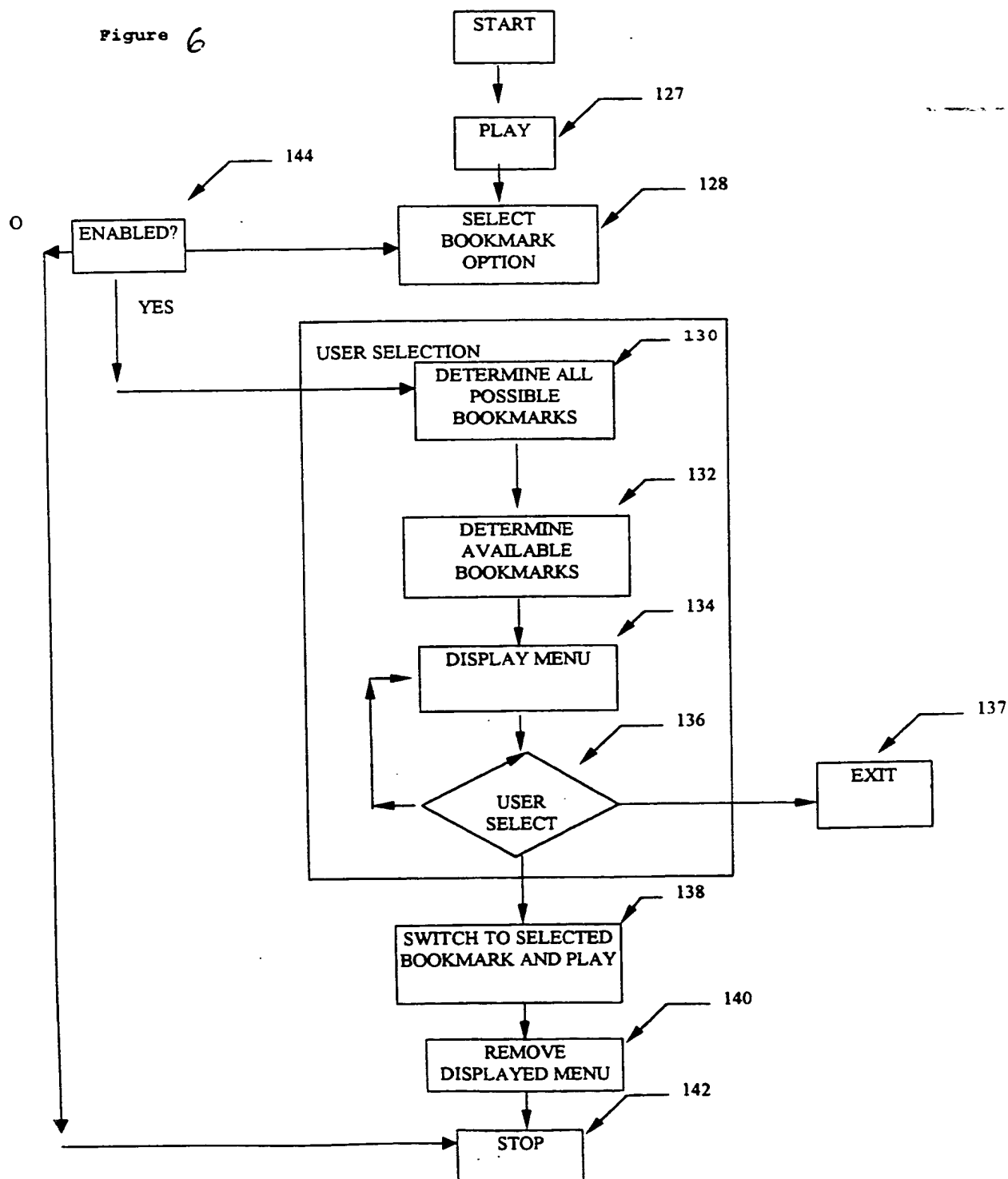
5/6

Figure 5



6/6

Figure 6



PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference RCA 88650	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 99/ 16381	International filing date (day/month/year) 20/07/1999	(Earliest) Priority Date (day/month/year) 20/07/1998
Applicant THOMSON CONSUMER ELECTRONICS, INC. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

5
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 99/16381

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G11B27/11 G11B27/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	EP 0 910 088 A (COMPAQ COMPUTER CORPORATION) 21 April 1999 (1999-04-21) column 3, line 44 -column 5, line 27 column 7, line 16 -column 11, line 3; figures 2-7	1-22
X A	US 5 063 547 A (CUSTERS ET AL) 5 November 1991 (1991-11-05) column 2, line 49 -column 4, line 23; figures 1-3	1-4, 8, 9, 17-22 5-7, 10-16



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"S" document member of the same patent family

Date of the actual completion of the international search

16 December 1999

Date of mailing of the international search report

23/12/1999

Name and mailing address of the ISA

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Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3018

Authorized officer

Dudley, C

INTERNATIONAL SEARCH REPORT

ation on patent family members

national Application No

PCT/US 99/16381

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0910088	A	21-04-1999	JP 11177937	A	02-07-1999
US 5063547	A	05-11-1991	NL 8402095	A	03-02-1986
			NL 8703086	A	17-07-1989
			AT 51460	T	15-04-1990
			CA 1302560	A	02-06-1992
			DD 232572	A	29-01-1986
			EP 0169597	A	29-01-1986
			ES 544685	A	16-12-1986
			HK 91291	A	22-11-1991
			JP 2571207	B	16-01-1997
			JP 61020282	A	29-01-1986
			KR 9400424	B	20-01-1994
			US 4779252	A	18-10-1988
			US RE34475	E	14-12-1993
			DE 3888651	D	28-04-1994
			DE 3888651	T	22-09-1994
			EP 0322037	A	28-06-1989
			JP 1201886	A	14-08-1989
			JP 2966850	B	25-10-1999
			KR 9705991	B	22-04-1997

AD

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference RCA 88650	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 99/ 16381	International filing date (day/month/year) 20/07/1999	(Earliest) Priority Date (day/month/year) 20/07/1998
Applicant THOMSON CONSUMER ELECTRONICS, INC. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

5
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

National Application No.

PCT/US 99/16381

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G11B27/11 G11B27/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X A	US 5 063 547 A (CUSTERS ET AL) 5 November 1991 (1991-11-05) column 2, line 49 -column 4, line 23; figures 1-3 -----	1-4, 8, 9, 17-22 5-7, 10-16



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

16 December 1999

Date of mailing of the international search report

23/12/1999

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

Dudley, C

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/16381

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0910088	A	21-04-1999	JP	11177937 A	02-07-1999
US 5063547	A	05-11-1991	NL	8402095 A	03-02-1986
			NL	8703086 A	17-07-1989
			AT	51460 T	15-04-1990
			CA	1302560 A	02-06-1992
			DD	232572 A	29-01-1986
			EP	0169597 A	29-01-1986
			ES	544685 A	16-12-1986
			HK	91291 A	22-11-1991
			JP	2571207 B	16-01-1997
			JP	61020282 A	29-01-1986
			KR	9400424 B	20-01-1994
			US	4779252 A	18-10-1988
			US	RE34475 E	14-12-1993
			DE	3888651 D	28-04-1994
			DE	3888651 T	22-09-1994
			EP	0322037 A	28-06-1989
			JP	1201886 A	14-08-1989
			JP	2966850 B	25-10-1999
			KR	9705991 B	22-04-1997

PATENT COOPERATION TREATY

PCT

REC'D 21 SEP 2000

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

15

Applicant's or agent's file reference RCA 88650	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US99/16381	International filing date (day/month/year) 20/07/1999	Priority date (day/month/year) 20/07/1998
International Patent Classification (IPC) or national classification and IPC H04N5/00		



Applicant
~~THOMSON CONSUMER ELECTRONICS, INC. et al.~~ **THOMSON LICENSING S.A.**

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
 - ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 18/02/2000	Date of completion of this report 18.09.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Guettlich, J Telephone No. +49 89 2399 2688 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US99/16381

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1,3-10 as originally filed

2,2a as received on 25/08/2000 with letter of 20/08/2000

Claims, No.:

1-11 as received on 25/08/2000 with letter of 20/08/2000

Drawings, sheets:

1/6-6/6 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☒ the claims, Nos.: 12-22
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US99/16381

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-11
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-11
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-11
	No:	Claims	

2. Citations and explanations

see separate sheet

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

and / or

2. Non-written disclosures (Rule 70.9)

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:

D1: US-A-5 063 547 (CUSTERS ET AL) 5 November 1991

V.1 Regarding claim 1:

D1, which is considered to represent the most relevant state of the art, discloses a method of controlling a system for processing stored information on a storage medium (column 1, lines 16-30). The disclosed method allows a user to select from a plurality of bookmarks (e.g. track numbers) and change the playback of stored information corresponding to the selected bookmarks (column 2, lines 49-68) using a display. Furthermore, it is generally known that the selection of bookmarks (tracks) of audio CD players can be performed during the time a CD is reproduced.

D1 does not disclose the manipulation of bookmarks via an on-screen menu while watching program information playback in the background portion of a video display whereby the manipulation includes setting, selecting, clearing of bookmarks or undoing a previously performed operation. Also the determining steps have not explicitly been mentioned. These features are neither disclosed nor suggested in the cited prior art document. They allow to more conveniently administer bookmarks related to a storage medium.

V.2 Regarding claims 2-10:

The dependent claims 2-10 add further features to independent claim 1 and thus also relate to novel and inventive subject-matter.

V.3 Regarding claim 11:

This independent apparatus claim relates to the independent method claim 1. The claimed apparatus features comprise the functionality necessary to implement the claimed method steps. Consequently, the argumentation given in paragraph V.1 above concerning claim 1 is also valid for claim 11.

V.4 The claimed invention is considered industrially applicable in the field of reproducing apparatus of storage media in accordance with Art.33(4) PCT.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US99/16381

Re Item VI

Certain documents cited

Certain published document (Rule 70.10)

Application No Patent No	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
EP-A-0 910 088	21.04.1999	17.09.1998	30.09.1997

EP-A-0 910 088 discloses a DVD system and control method for setting user preferences to customise content representation via an on-screen display in a display system using a DVD source. The document covers the use of bookmarks to set positional entries within stored information on a record medium for an auto-resume function, parental control or tagging of favourite information locations. A database structure is used so that multiple users can set their preferences/bookmarks individually per DVD.

Re Item VII

Certain defects in the international application

It is required to adapt the disclosure of invention in such a way that the technical problem with which it deals can be appreciated and the solution can be understood and it is in agreement with the claim of broadest scope (Rule 5.1(a)(iii) PCT; Guidelines II-4.6).

a video title menu usually lists the available chapters on a particular video title. The menus are usually configured such that the user can begin playback from the starting point of a selected video title or chapter.

However, these menus do not allow the user to select an arbitrary
5 point within a video title or chapter for starting playback. For example, a user may have a favorite point in the middle of video title or a chapter in which to start playback. The user also may wish to avoid the inconvenience of manipulating the fast forward or reverse commands to reach the precise point desired. The user may also have a plurality of such favorite points located
10 throughout the disc or within a video title. It can be seen that locating each of the desired points during playback can quickly become cumbersome and annoying. Therefore, what is needed is a user interface, apparatus and method which allows the user to avoid the inconvenience of having to manipulate the various transport keys in order to locate and start playback from a selected
15 location within a video title or chapter.

U.S. Pat. No. 5,063,547 discloses an apparatus for reproducing a user defined preferred selection program from data stored on a compact disc. The disclosed apparatus is adapted to identify a particular disc from the sub-code on the disc. A user identification may also be
20 stored in the player. The user identification and the disc identification are combined to form one identification code that may be associated with a preferred selection program stored in the memory. The preferred selection program may comprise track number selections, time within a track number or absolute time. A display included in the apparatus provides an
25 indication of the selected choice.

In accordance with principles of the present invention, a method of controlling a system for processing stored information on a storage medium includes the following steps. Stored information is played back during a play mode of operation. A user is provided an opportunity to select a bookmark,
30 representing a corresponding location within the stored information, from among a plurality of bookmarks, responsive to user input. Playback is changed to the location corresponding to the selected bookmark during the play mode of

operation. Apparatus for processing information stored on a storage medium includes playback circuitry for retrieving information from the storage medium during a play mode of operation. A user control device receives user input. Control circuitry selects a bookmark, corresponding to a location in the retrieved
5 information from the storage medium, in response to the user input, and conditions the playback circuitry to retrieve information from the storage medium starting at the location corresponding to the selected one of a plurality of bookmarks during the play mode of operation.

The invention will be described with reference to the accompanying
10 drawings, wherein:

Fig. 1 is a block diagram of a digital video disc player suitable for implementing the bookmark feature of the present invention;

2a

AMENDED SHEET

→ 3

Claims

1. A method of controlling a system for processing stored information on a storage medium, comprising the steps of:

(A) playing back (127) stored information during a play mode of

5 operation;

(B) providing (134) to a user, during play mode of operation, an opportunity to select a bookmark, representing a corresponding location within the stored information, from among a plurality of bookmarks responsive to user input; and

10 (C) changing (138) to playing back the stored information from the location corresponding to the selected bookmark during the play mode of operation, characterized in that step (B) includes

determining (130) the maximum number of the plurality of bookmarks which may be associated with the storage medium;

15 determining (132) which of the maximum number of the plurality of bookmarks are actually available for the storage medium;

generating (134) an on-screen menu (110) displaying the maximum number of the plurality of bookmarks available and the actually available ones of the plurality of bookmarks associated with the storage medium, the menu

20 allowing the user to perform one of:

(a) set a new bookmark;

(b) select a bookmark and clearing the selected bookmark,

(c) select a bookmark and play back the stored information

from the location corresponding to the selected bookmark, and

25 (d) undo a previously performed operation

while continuing to watch program information playback in a background portion of the video display.

2. The method of claim 1, further characterized by the steps of:
grouping the plurality of bookmarks into sets each having a predetermined
number of bookmarks;

5 storing each group of bookmarks; and
providing to the user an opportunity to retrieve a desired set of bookmarks

3. The method of claim 1, characterized in that:

step (B) further comprises the step of providing to the user an opportunity
10 to select a first and a second bookmark from among the plurality of bookmarks,
and

step (C) further comprises the step of changing to playback the stored
information from the location corresponding to the first selected bookmark to the
location corresponding to the location of the second bookmark.

15

4. The method of claim 3, characterized in that step (C) further comprises
the step of selectively continually repeating the playback of the stored
information from the location corresponding to the first selected bookmark to the
location corresponding to the location of the second bookmark, in response to
20 user control.

5. The method of claim 1, characterized in that the storage medium is a
DVD disk, and wherein:

the step of determining (132) the bookmarks actually present for the
25 particular DVD disk comprises evaluating data related to the DVD disk in non-
volatile memory in the disk player.

6. The method of claim 1, characterized in that step (B) is preceded by
the step of determining (144) whether a mode of operation enabling user access
30 to bookmarks during play mode of operation is enabled; and

performing steps (B) and (C) only if the mode of operation user access to
bookmarks during play mode of operation is enabled.

7. The method of claim 1, characterized in that the system comprises a DVD player and the storage medium comprises a DVD disk.

5 8. The method of claim 7, characterized in that the step of setting a new bookmark in response to a user command comprises storing data associated with a pause function, including the nearest NAV_PACK address, in conformance with the DVD specification.

10 9. The method of claim 8, characterized in that the step of changing playback from a new bookmarked location comprises launching a user operative RESUME command, using a stored NAV_PACK address, in conformance with the DVD specification.

15 10. The method of claim 1, characterized in that step (C) further comprises the steps of selecting a first and second bookmark and continually repeating playing back the stored information from the location corresponding to the first selected bookmark to location corresponding to the second selected bookmark.

20 11. Apparatus for processing information stored on a storage medium, comprising:

a data processing unit (28,30) for accessing and processing information stored on the storage medium during the play mode of operation of the

25 apparatus;

a user control device (41) for receiving user input;

an on-screen display device (34,35) for generating on-screen displays; and

a controller (40), coupled to the data processing unit, the user control device, and the on-screen display device, for activating the play mode of
30 operation, and providing to a user during the play mode of operation an opportunity to access previously stored bookmarks, characterized in that

the controller determines (130) the maximum number of the plurality of bookmarks which may be associated with the storage medium, and which of the maximum number of the plurality of bookmarks are actually available (132) for the storage medium, and

5 the on-screen display unit generates (134) an on-screen menu (110) displaying the maximum number of the plurality of bookmarks available and the actually available ones of the plurality of bookmarks associated with the storage medium, the menu allowing the user to perform one of:

(a) set a new bookmark;

10 (b) select a bookmark and clearing the selected bookmark,

(c) select a bookmark and playing back the stored information from the location corresponding to the selected bookmark, and

(d) allow the user to undo a previously performed operation

while continuing to watch the information playback in a background portion of a

15 video display.

RECEIVED

SEP 25 2000

PCT

IS&S

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

TRIPOLI, J.
THOMSON MULTIMEDIA LICENSING INC.
P.O. Box 5312
Princeton, New Jersey 08543
ETATS-UNIS D'AMERIQUE

PPK

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
(day/month/year) 18.09.2000

Applicant's or agent's file reference
RCA 88650

IMPORTANT NOTIFICATION

International application No.
PCT/US99/16381

International filing date (day/month/year)
20/07/1999

Priority date (day/month/year)
20/07/1998

Applicant
THOMSON CONSUMER ELECTRONICS, INC. et al.

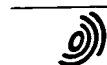
1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference RCA 88650	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US99/16381	International filing date (day/month/year) 20/07/1999	Priority date (day/month/year) 20/07/1998
International Patent Classification (IPC) or national classification and IPC H04N5/00		
Applicant THOMSON CONSUMER ELECTRONICS, INC. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 18/02/2000	Date of completion of this report 18.09.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Guettlich, J Telephone No. +49 89 2399 2688



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US99/16381

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

Description, pages:

1,3-10	as originally filed			
2,2a	as received on	25/08/2000	with letter of	20/08/2000

Claims, No.:

1-11	as received on	25/08/2000	with letter of	20/08/2000
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Drawings, sheets:

1/6-6/6	as originally filed
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2. The amendments have resulted in the cancellation of:

- | | | | |
|-------------------------------------|------------------|---------|-------|
| <input type="checkbox"/> | the description, | pages: | |
| <input checked="" type="checkbox"/> | the claims, | Nos.: | 12-22 |
| <input type="checkbox"/> | the drawings, | sheets: | |

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US99/16381

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-11
	No: Claims
Inventive step (IS)	Yes: Claims 1-11
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-11
	No: Claims

2. Citations and explanations

see separate sheet

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

and / or

2. Non-written disclosures (Rule 70.9)

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US99/16381

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:

D1: US-A-5 063 547 (CUSTERS ET AL) 5 November 1991

V.1 Regarding claim 1:

D1, which is considered to represent the most relevant state of the art, discloses a method of controlling a system for processing stored information on a storage medium (column 1, lines 16-30). The disclosed method allows a user to select from a plurality of bookmarks (e.g. track numbers) and change the playback of stored information corresponding to the selected bookmarks (column 2, lines 49-68) using a display. Furthermore, it is generally known that the selection of bookmarks (tracks) of audio CD players can be performed during the time a CD is reproduced.

D1 does not disclose the manipulation of bookmarks via an on-screen menu while watching program information playback in the background portion of a video display whereby the manipulation includes setting, selecting, clearing of bookmarks or undoing a previously performed operation. Also the determining steps have not explicitly been mentioned. These features are neither disclosed nor suggested in the cited prior art document. They allow to more conveniently administer bookmarks related to a storage medium.

V.2 Regarding claims 2-10:

The dependent claims 2-10 add further features to independent claim 1 and thus also relate to novel and inventive subject-matter.

V.3 Regarding claim 11:

This independent apparatus claim relates to the independent method claim 1. The claimed apparatus features comprise the functionality necessary to implement the claimed method steps. Consequently, the argumentation given in paragraph V.1 above concerning claim 1 is also valid for claim 11.

V.4 The claimed invention is considered industrially applicable in the field of reproducing apparatus of storage media in accordance with Art.33(4) PCT.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US99/16381

Re Item VI

Certain documents cited

Certain published document (Rule 70.10)

Application No Patent No	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
EP-A-0 910 088	21.04.1999	17.09.1998	30.09.1997

EP-A-0 910 088 discloses a DVD system and control method for setting user preferences to customise content representation via an on-screen display in a display system using a DVD source. The document covers the use of bookmarks to set positional entries within stored information on a record medium for an auto-resume function, parental control or tagging of favourite information locations. A database structure is used so that multiple users can set their preferences/bookmarks individually per DVD.

Re Item VII

Certain defects in the international application

It is required to adapt the disclosure of invention in such a way that the technical problem with which it deals can be appreciated and the solution can be understood and it is in agreement with the claim of broadest scope (Rule 5.1(a)(iii) PCT; Guidelines II-4.6).